

## **ABSTRACT OF THE DISCLOSURE**

A method for patterning a magnetic memory cell junction is provided herein, which includes etching exposed portions of a stack of layers to a level spaced above a  
5 tunneling barrier layer of the stack of layers. In addition, the method may include  
implanting dopants into exposed portions of the stack of layers. For example, the method  
may include oxidizing and/or nitriding the exposed portions of the stack of layers. In  
some embodiments, the steps of etching and implanting dopants may form an upper  
portion of the magnetic cell junction. Alternatively, the method may include alternating  
10 the steps of etching and implanting dopants throughout the thickness of the exposed  
portions of the stack of layers. In either case, the stack of layers may include a magnetic  
layer which includes a material adapted to prevent the introduction of dopants underlying  
the tunneling barrier layer during the step of implanting.